

# ENTOMOLOGICAL NEWS

AND

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## A New Cecidomyiid on Oak.

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(Plate XIV)

This insect was discovered by Mr. W. V. Tower, in July, 1905, working on the leaves of a black oak. He began observation on its life history but was called away and the work was taken up by Mr. H. M. Russell. Mr. Russell had practically finished, except for describing the adult, when he left to take a position with the U. S. Department of Agriculture and the subject was placed in my hands to complete. In addition to verifying Mr. Russell's observations, I have described the adult, which Mr. E. P. Felt kindly determined as a new species. The gall which it forms has been described by Osten Sacken as *C. crubescens*.\*

This species of gallfly is very abundant on a black oak (*Quercus coccinae* var. *tinctoria* group) growing near the President's house on the college grounds. This oak is in a small clump of red oaks, none of which have become infested; this seems to indicate that this *Cecidomyia* will feed only on black

\* Mon. N. A. Dipt. I, p. 200, n. 20, 1862. "Folded margin of an oak leaf, tinged with red. This deformation seems to resemble that of *C. quercus* Lw. on the European oaks. Occurs in the spring."

oak, as the infested tree harbors many thousands of the larvae and under its branches, the adults are found in swarms. Every leaf is infested, by from one to over one hundred, as high up as one can climb, certainly within ten feet of the top; but the infestation at the highest point is not as extensive as that of the lower limbs.

***Cecidomyia* (?) *foliora* n. sp.\***

*Female*.—Length, 1.95 to 2.55 mm. Antennae of 14 segments, length .95 to .99 mm.; the two basal segments light yellow, the others brown, thickly clothed with coarse brown hairs. Face bright orange-red; back of head with a fringe of dark brown setae. Mesonotum Van Dyke brown, with pale submedian lines, sparsely covered with fine setae. Sternum, pro and metapleura light brown, mesopleura dark brown. Abdomen with the five basal segments bright orange-red, thence gradually fading to a light yellow at the apex and lemon yellow on the protrusible ovipositor;—within a few days the color of the ovipositor often darkens to an orange-red. Surface sparsely clothed with yellow setae. Legs light yellow, thickly covered with dark brown pubescence.

*Male*.—Length, 1.20 to 1.65 mm. Antennae 1.50 to 1.65 mm. Scutellum orange-red; pleura pale brownish yellow, mesopleura marked with black. Abdomen orange-brown.

The large bright orange-red abdomen and larger size of the females, make them quite conspicuous among the smaller males with their dull-colored abdomens. The color darkens within a few days after collecting, so that fresh material is necessary for identification; the gall, however, is quite characteristic and cannot be mistaken.

Described from nineteen specimens on eight pins, and from sixteen specimens mounted on six microscopic slides—eighteen male and seventeen female cotypes. These have been deposited as follows: Two females and one male (one slide), and two females and three males (two pins) in the collection of the United States National Museum at Washington, D. C.; two females and one male (one slide), and two females and three males (two pins) in the collection of the New York State Entomologist, Albany, N. Y.; the remainder—five females and five males (four slides), and four females and five males (four pins) in the collection of the Massachusetts Agricultural College.

\* *Foliora* from *folium*, leaf and *ora*, edge.

Six females and seventeen males (six slides) and five females and six males (six pins) from the same series have been marked Paratypes and are in the collection of the Massachusetts Agricultural College, as are also slides of the early stages.

This insect may ultimately prove to belong to another genus, but I follow Dr. Felt (in litt.) in referring it tentatively to *Cecidomyia*.

#### LIFE HISTORY.

*Adult*.—The adult insect emerges from the ground from May 1 to 20, and all have disappeared by June 1. In the spring of 1908, the author caught five adults May 4, and by May 11 the insects were found under the tree in thousands, being so numerous that it was only necessary to sweep an open cyanide jar over the top of and through the grass to obtain all the specimens desired. The adults appear just as the leaves begin to unfold. For a time, after emerging, large numbers will be found in the early morning and on wet days especially, under the tree, but as it gets warmer and the dew dries off, they rise among the branches. They have a feeble flight, however, and do not fly out beyond the borders of the tree. When the leaves are one to two inches long, the females fly to the leaves and begin to lay their eggs, for the most part on the under side.

*Eggs*.—The eggs are laid without any regular order, attached to the leaf by the posterior pole and placed diagonally to the plane of the leaf surface. The egg is minute, appearing to the eye like a reddish protuberance. Under the microscope it is seen to be almost perfectly oval, .27 mm. long and .09 mm. wide. The surface is smooth and the egg shell transparent, the reddish color more intense at one end, being due to the larva inside. Most of the eggs are scattered irregularly between the veins on the lower surface, but a few are generally laid, apparently by chance, on the upper side. From fifty leaves, an average of seventy eggs was obtained for each, with not over six on the upper side, but the total number varied from forty to one hundred and twenty. On one leaf, an inch and three-quarters of an inch wide, there were two hundred and eighty-one eggs on the lower surface and one hundred and seventy-five on the upper. This, however, is an exceptional case.

*Larva*.—The larva hatches in from four to six days, the time varying with the weather. The body is pale orange, the head a shade darker. Length .27 mm.; width .10 mm. They go at once to the edge of the leaf, or to any hole in it, and begin to feed on the upper surface. After about four days of this feeding, the edge begins to curl over on to the upper surface, forming a roll, the upper side of which becomes

more or less reddish. Within this roll, the larva continues to feed, extending the roll as it grows. Occasionally, a young larva feeds for a time in a circle on the exposed surface of the leaf, causing it to become reddish and wrinkled. By May 22, nearly all the leaves near the ground show the rolls, which in some cases, nearly encircle the leaf, while in others, they may be about one-quarter of an inch long. In one roll, an inch long, twenty-five larvae were found; while in others, only a few were present. As a rule, the longer the roll, the fewer insects they contain relatively. The insects remain in the larval stage through the summer, becoming full grown by the last of September or first of October, when all but those parasitized descend into the ground and pupate to pass the winter. In exceptional cases, perfect larvae are not able to escape from the roll in the fall, and so pass the winter in the gall, emerging at the usual time in the spring through cracks or punctures in the drier rolls.

*Parasites.*—This gallfly is attacked by a chalcid egg parasite which appears at the same time in swarms almost as large as those of the host. The female chalcid walks around among the *Cecidomyia* eggs touching them rapidly with her antennae and stopping every now and then to insert her ovipositor and lay an egg in one of the host eggs, but neglects those surrounding it.

A species of mite was also found to be very abundant under and on the tree, and though it was not seen attacking eggs or larva, conditions were such that it may be considered as possibly a parasite.

#### EXPLANATION OF PLATE XIV.

1. Lower side of leaf showing galls, half natural size.
2. First stage of larva, not over six days old; just beginning to form galls on oak leaves. X 190.
3. Wing of *C. foliora*. X 25.
4. Segment of antenna of male; greatly enlarged.
5. "Wishbone" of full grown larva; greatly enlarged.
6. Dorsal view of head of full grown larva; greatly enlarged.

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MOSQUITOES INVADE CITY.—Swarm Comes to Town and Plays Havoc Before Storm.—Just before the heavy storm last night a large swarm of mosquitoes flew into the city and caused a great deal of annoyance and plenty of work for physicians in the hospitals of the northeast section. In about fifteen minutes after the swarm struck the city the hospitals began to receive patients with their faces and hands so badly swollen that it was necessary in some cases to lance them to draw out the sting of the bite. On Girard Avenue, east of Belgrade Street, the pests stripped all the trees of their leaves. After they had passed the trees looked as though autumn had come.—*Philadelphia Press*, July 24, 1908. [!!!]